

Appl. No. 09/577,529

Amendment in Response to final Office Action of October 28, 2004

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

#### **Listing of Claims:**

**Claim 1 (Currently Amended):** A method for multi-dimensional color transformation comprising:

(a) applying a multi-dimensional color transformation for transformation of source device-dependent coordinates to destination device-dependent coordinates, wherein the source device-dependent coordinates and destination device-dependent coordinates have, at least in part, a common coordinate system; and

(b) constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of selected colorants specified by the source device-dependent coordinates.

**Claim 2 (Original):** The method of claim 1, wherein the multi-dimensional color transformation is configured based on the constraints imposed in step (b).

**Claim 3 (Previously Presented):** The method of claim 1, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of selected colorants present at corresponding dots specified by the source device-dependent coordinates.

**Claim 4 (Previously Presented):** The method of claim 1, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of black colorant present at corresponding dots specified by the source device-dependent coordinates.

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**Claim 5 (Previously Presented):** The method of claim 1, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of one or more chromatic colorants present at corresponding dots specified by the source device-dependent coordinates.

**Claim 6 (Previously Presented):** The method of claim 1, further comprising:  
(c) constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent introduction of selected colorants not specified by the source device-dependent coordinates.

**Claim 7 (Previously Presented):** The method of claim 6, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of selected colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 8 (Previously Presented):** The method of claim 6, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of black colorant not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 9 (Previously Presented):** The method of claim 6, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of one or more chromatic colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 10 (Previously Presented):** The method of claim 6, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of chromatic colorants for black-only dots specified by the source device-dependent coordinates.

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**Claim 11 (Previously Presented):** The method of claim 6, further comprising constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation in at least one of steps (b) and (c) based at least in part on constraints specified by a user.

**Claim 12 (Previously Presented):** The method of claim 1, wherein each of the source device-dependent coordinates and destination device-dependent coordinates is defined by cyan, magenta, yellow, and black (CMYK) colorants.

**Claim 13 (Currently Amended):** A method for multi-dimensional color transformation comprising:

(a) generating a multi-dimensional color transformation for transformation of a source device-dependent coordinates to a destination device-dependent coordinates, wherein the source device-dependent coordinates and destination device-dependent coordinates have, at least in part, a common coordinate system; and

(b) constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent introduction of selected colorants not specified by the source device-dependent coordinates.

**Claim 14 (Original):** The method of claim 13, wherein the multi-dimensional color transformation is configured based on the constraints imposed in step (b).

**Claim 15 (Previously Presented):** The method of claim 13, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of selected colorants not present at corresponding dots specified by the source device-dependent coordinates.

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**Claim 16 (Previously Presented):** The method of claim 13, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of black colorant not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 17 (Previously Presented):** The method of claim 13, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of one or more chromatic colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 18 (Previously Presented):** The method of claim 13, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of chromatic colorants for black-only dots specified by the source device-dependent coordinates.

**Claim 19 (Previously Presented):** The method of claim 13, wherein each of the source device-dependent coordinates and destination device-dependent coordinates is defined by cyan, magenta, yellow, and black (CMYK) colorants.

**Claim 20 (Currently Amended):** A system for multi-dimensional color transformation comprising:

a processor that generates a multi-dimensional color transformation for transformation of a source device-dependent coordinates to destination device-dependent coordinates, wherein the source device-dependent coordinates and destination device-dependent coordinates have, at least in part, a common coordinate system, and

a memory that stores constraints,

wherein the processor is programmed to apply the constraints to constrain the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of selected colorants specified by the source device-dependent coordinates.

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**Claim 21 (Original):** The system of claim 20, wherein the multi-dimensional color transformation is configured based on the constraints applied by the processor.

**Claim 22 (Previously Presented):** The system of claim 20, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of selected colorants present at corresponding dots specified by the source device-dependent coordinates.

**Claim 23 (Previously Presented):** The system of claim 20, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of black colorant present at corresponding dots specified by the source device-dependent coordinates.

**Claim 24 (Previously Presented):** The system of claim 20, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of one or more chromatic colorants present at corresponding dots specified by the source device-dependent coordinates.

**Claim 25 (Previously Presented):** The system of claim 20, wherein the processor is further programmed to constrain the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent introduction of selected colorants ~~color image data~~ not present specified by the source device-dependent coordinates.

**Claim 26 (Previously Presented):** The system of claim 25, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of selected colorants not present at corresponding dots specified by the source device-dependent coordinates.

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Claim 27 (Previously Presented): The system of claim 25, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of black colorant not present at corresponding dots specified by the source device-dependent coordinates.

Claim 28 (Previously Presented): The system of claim 25, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of one or more chromatic colorants not present at corresponding dots specified by the source device-dependent coordinates.

Claim 29 (Previously Presented): The system of claim 25, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of chromatic colorants for black-only dots specified by the source device-dependent coordinates.

Claim 30 (Previously Presented): The system of claim 20, wherein each of the source device-dependent coordinates and destination device-dependent coordinates is defined by cyan, magenta, yellow, and black (CMYK) colorants.

Claim 31 (Currently Amended): A system for multi-dimensional color transformation comprising:

a processor that generates a multi-dimensional color transformation for transformation of a source device-dependent coordinates to a destination device-dependent coordinates, wherein the source device-dependent coordinates and destination device-dependent coordinates have, at least in part, a common coordinate system; and

a memory that stores constraints,

wherein the processor is programmed to apply the constraints to constrain the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent introduction of selected colorants not specified by the source device-dependent coordinates.

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**Claim 32 (Original):** The system of claim 31, wherein the multi-dimensional color transformation is configured based on the constraints applied by the processor.

**Claim 33 (Previously Presented):** The system of claim 31, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of selected colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 34 (Previously Presented):** The system of claim 31, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of black colorant not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 35 (Previously Presented):** The system of claim 31, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of one or more chromatic colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 36 (Previously Presented):** The system of claim 31, wherein the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of chromatic colorants for black-only dots specified by the source device-dependent coordinates.

**Claim 37 (Previously Presented):** The system of claim 31, wherein each of the source device-dependent coordinates and destination device-dependent coordinates is defined by cyan, magenta, yellow, and black (CMYK) colorants.

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**Claim 38 (Currently Amended):** A computer-readable medium containing program code that when executed by a processor:

(a) generates a multi-dimensional color transformation for transformation of source device-dependent coordinates to destination device-dependent coordinates, wherein the source device-dependent coordinates and destination device-dependent coordinates have, at least in part, a common coordinate system; and

(b) constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of selected colorants ~~color image data~~ specified by the source device-dependent coordinates.

**Claim 39 (Original):** The computer-readable medium of claim 38, wherein the multi-dimensional color transformation is configured based on the constraints imposed in step (b).

**Claim 40 (Previously Presented):** The computer-readable medium of claim 38, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of selected colorants present at corresponding dots specified by the source device-dependent coordinates.

**Claim 41 (Previously Presented):** The computer-readable medium of claim 38, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of black colorant present at corresponding dots specified by the source device-dependent coordinates.

**Claim 42 (Previously Presented):** The computer-readable medium of claim 38, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent removal of one or more chromatic colorants present at corresponding dots specified by the source device-dependent coordinates.



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**Claim 43 (Previously Presented):** The computer-readable medium of claim 38, wherein the program code is configured such that, when executed, the processor:

(c) constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent introduction of selected colorants ~~color image data~~ not present specified by the source device-dependent coordinates.

**Claim 44 (Previously Presented):** The computer-readable medium of claim 43, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of selected colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 45 (Previously Presented):** The computer-readable medium of claim 43, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of black colorant not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 46 (Previously Presented):** The computer-readable medium of claim 43, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of one or more chromatic colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 47 (Previously Presented):** The computer-readable medium of claim 43, wherein step (c) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of chromatic colorants for black-only dots specified by the source device-dependent coordinates.

**Claim 48 (Previously Presented):** The computer-readable medium of claim 43, wherein the program code is configured such that, when executed, the processor constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation in at least one of steps (b) and (c) based at least in part on constraints specified by a user.

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Claim 49 (Previously Presented): The computer-readable medium of claim 38, wherein each of the source device-dependent coordinates and destination device-dependent coordinates is defined by cyan, magenta, yellow, and black (CMYK) colorants.

Claim 50 (Currently Amended): A computer-readable medium containing program code that when executed by a processor:

(a) generates a multi-dimensional color transformation for transformation of source device-dependent coordinates to destination device-dependent coordinates, wherein the source device-dependent coordinates and destination device-dependent coordinates have, at least in part, a common coordinate system; and

(b) constrains the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent introduction of selected colorants not specified by the source device-dependent coordinates.

Claim 51 (Original): The computer-readable medium of claim 50, wherein the multi-dimensional color transformation is configured based on the constraints imposed in step (b).

Claim 52 (Previously Presented): The computer-readable medium of claim 50, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of selected colorants not present at corresponding dots specified by the source device-dependent coordinates.

Claim 53 (Previously Presented): The computer-readable medium of claim 50, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of black colorant not present at corresponding dots specified by the source device-dependent coordinates.

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Claim 54 (Previously Presented): The computer-readable medium of claim 50, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of one or more chromatic colorants not present at corresponding dots specified by the source device-dependent coordinates.

Claim 55 (Previously Presented): The computer-readable medium of claim 50, wherein step (b) includes constraining the destination device-dependent coordinates produced by the multi-dimensional color transformation to prevent addition of chromatic colorants for black-only dots specified by the source device-dependent coordinates.

Claim 56 (Previously Presented): The computer-readable medium of claim 50, wherein each of the source device-dependent coordinates and destination device-dependent coordinates is defined by cyan, magenta, yellow, and black (CMYK) colorants.

Claim 57 (Canceled).

Claim 58 (Canceled).

Claim 59 (Currently Amended): A method for multi-dimensional color transformation comprising:

applying a multi-dimensional color transformation for transformation of source device-dependent coordinates to destination device-dependent coordinates, wherein the source device-dependent coordinates and destination device-dependent coordinates have, at least in part, a common coordinate system; and

constraining the destination device-dependent coordinates to a range of matching destination device-dependent coordinates searched by the multi-dimensional color transformation as a function of the source device-dependent coordinates to prevent substitution for colorants specified by the source device-dependent coordinates.

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**Claim 60 (Previously Presented):** The method of claim 59, wherein constraining includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent removal of selected colorants specified by the source device-dependent coordinates.

**Claim 61 (Previously Presented):** The method of claim 59, wherein constraining includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent removal of selected colorants present at corresponding dots specified by the source device-dependent coordinates.

**Claim 62 (Previously Presented):** The method of claim 59, wherein constraining includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent removal of black colorant present at corresponding dots specified by the source device-dependent coordinates.

**Claim 63 (Previously Presented):** The method of claim 59, wherein constraining includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent removal of one or more chromatic colorants present at corresponding dots specified by the source device-dependent coordinates.

**Claim 64 (Previously Presented):** The method of claim 59, wherein constraining includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent introduction of selected colorants not specified by the source device-dependent coordinates.

**Claim 65 (Previously Presented):** The method of claim 59, wherein constraining includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent addition of selected colorants not present at corresponding dots specified by the source device-dependent coordinates.

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**Claim 66 (Previously Presented):** The method of claim 59, wherein constraining includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent addition of black colorant not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 67 (Previously Presented):** The method of claim 59, wherein step (b) includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent addition of one or more chromatic colorants not present at corresponding dots specified by the source device-dependent coordinates.

**Claim 68 (Previously Presented):** The method of claim 59, wherein step (b) includes constraining the destination device-dependent coordinates in the multi-dimensional color transformation to prevent addition of chromatic colorants for black-only dots specified by the source device-dependent coordinates.